

# Office of Academic Affairs

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## Environmental Sciences Certificate Program

Any study of the human environment is by nature multi-disciplinary. Therefore, an undergraduate certificate program in Environmental Sciences (ENS) that can also serve as an academic minor has been established to serve a large student population from a variety of disciplinary majors. The intent of this program is to provide a certification track whereby a student in any given undergraduate major may strategically select elective courses within their normal program of study to additionally satisfy the requirements for a certificate and minor in Environmental Sciences. Certification is also available for the nontraditional student seeking further professional credentials for career development.

Due to the multi-disciplinary nature of the program, it structurally resides and is administered within the Office of Academic Affairs, outside of any particular college. A program coordinator is appointed by the Provost to advise Environmental Sciences students and assist departmental advisors. It is also the coordinator's responsibility to perform the necessary transcript audits and formally authorize the certificates and minors.

To assist the ENS coordinator and provide a mechanism for regular review, a faculty oversight committee has been formed. The committee is composed of at least six faculty members including the ENS advisor and represents a cross-section of environmental disciplines.

For further information and enrollment forms, please contact the ENS program coordinator:

Dr. Joseph Massey  
Department of Plant and Soil Sciences  
117 Dorman Hall  
662-325-4725; jmassey@pss.msstate.edu

## Environmental Sciences Certificate

A total of 22 semester hours are required in the following four component areas with at least six hours from the social sciences and humanities and six hours from the natural sciences. Courses typically serve as electives within any traditional disciplinary major. No more than two courses can be double-counted between the ENS certificate and the student's academic major. Courses marked in **BOLD** are required of all students. It is recommended that ENS 2102 be taken as the entry-level course.

ENS 2102 Intro to Environmental Science

### Social Sciences and Humanities (6-12 hours)

BL 4263 Environmental Law  
SO 4173 Environment and Society  
PS 4743 Environmental Policy  
AEC 3233 Intro Environmental Economics and Policy  
AEC 4233 Advanced Topics in Environmental Economics  
GG 4523 Coastal Environments  
GR 3113 Conservation of Natural Resources  
SO 4703 Population Problems and Processes  
FO 4413 Natural Resources Policy  
FP 4313 Environmental Principles  
WF 4463 Human Dimensions of Fish & Wildlife Mgt

### Capstone (2 hours)

ENS 4102 Practicum (with seminar)

### Natural Sciences (6-12 hours)

BIO 2503 Environmental Quality  
BIO 3104 Ecology  
BIO 3114 Marine Biology  
BIO 4213 Plant Ecology  
BIO 4404 Environmental Microbiology  
CE 3824 Environmental Engineering  
CE 4843 Advance Sanitary Analysis  
CE 4873 Water and Wastewater Treatment  
CE 4893 Hazardous Waste Management  
CH 4303 Environmental Chemistry  
CHE 4613 Air Pollution Control Design  
CHE 4623 Hazardous Waste Incineration  
CVM4513 Environmental Toxicology  
FO 3123 Forest Ecology and Global Environment  
GG 3613 Water Resources  
GG 3133 Intro Environmental Geology  
GR 4943 Air Pollution Meteorology  
GR 4613 Applied Climatology  
GR 4813 Natural Hazards and Processes  
PSS 3303 Soils  
PSS 4313 Soil Microbiology  
PSS 4333 Soil Conservation and Land Use  
ABE 3303 Biosystems Environment I  
ABE 4312 Biosystems Environment II

## Geospatial and Remote Sensing Technologies Certificate Program

Technology revolutions have driven the expectations of remote sensing and geospatial technologies to an all-time high for a new generation of users across a vast number of disciplines. Advances in computational technologies, visualization products, and sensor technologies have led to the development of unprecedented capabilities in remote sensing, global position systems, and geographic information systems. With the recent launches of commercial and governmental remote sensing satellites, as well as the development of aerial remote sensing instruments that provide advanced spectral and radar technologies, the industry is poised to develop operational remote sensing applications that fundamentally impact management of resources. Mississippi

State University has developed broad, multi-disciplinary efforts in spatial technologies of many types, and is a leader among universities in education and outreach activities to prepare the next generation for utilizing these technologies. One of the primary limitations to the development of this industry is the need for a better-educated workforce that can understand and utilize the tools of these spatial technologies. Education in geospatial and remote sensing technologies is by nature multi-disciplinary; therefore, a certificate program that crosses departmental and college boundaries has been developed to address these needs. This certificate can thus serve the needs of undergraduate and graduate students with diverse backgrounds from a variety of disciplines. Students may strategically assess which courses within their disciplinary academic program can be used for the certificate program, thus satisfying the needs of both and maximizing their educational experience. Non-traditional students may also receive the certificate in seeking professional credentials for career enhancement.

The certificate should represent a student's mastery of basic GIS and Remote Sensing coursework. A minimum of 3 hours of coursework is required in each of these areas:

- Geographic Information Systems
- Remote Sensing
- Spatial Positioning Technologies

Students are required to complete 6 hours of additional coursework chosen from a list of restricted electives that are offered by several MSU departments.

Due to the multi-disciplinary nature of this program, the Office of Academic Affairs is the resident office for admission and administration. Thus, the program is not focused on a single college or department. A program coordinator, appointed by the Provost, advises students seeking the GRS certificate, and assists departmental advisors. The coordinator is also responsible for conducting the necessary transcript audits and authorizing the awarding of certificates.

A multi-disciplinary certificate program has also been developed in Geospatial and Remote Sensing Engineering. This is administered through the College of Engineering. See this listing under that college for more information.

For further information and enrollment information, contact the GRS program coordinator:

Dr. David R. Shaw, Director  
Geosystems Research Institute; A127 HPC  
662-325-9575  
dshaw@gri.msstate.edu

A total of 15 semester hours are required: nine selected from the list of required courses, and six selected from the list of elective courses.

### Required Courses (9 hours)

Remote Sensing - choose one

- ABE/PSS 4483/6483 Introduction to Remote Sensing OR
- ECE 4423/6423 Introduction to Remote Sensing
- GR 4333/6333 Remote Sensing of the Physical Environment
- FO 4452/6452 Remote Sensing Applications AND
- FO 4451/6451 Remote Sensing Applications Lab

GIS - choose one

- GR 4303/6303 Principles of GIS
- WF 4253/6253 GIS and GPS in Wildlife Management
- FO 4472/6472 GIS for Natural Resource Management AND
- FO 4471/6471 GIS for Natural Resource Management Lab

Positioning Technologies - choose one

- PSS 4373/6373 Geospatial Agronomic Management
- GR 3303 Survey of Geospatial Technologies
- FO 4313/6313 Spatial Technologies in Natural Res. Mgt.

### Electives - 6 hours\*

- ECE 3443 Signals and Systems
- ECE 4413/6413 Digital Signal Processing
- ECE 8401 Current Topics in Remote Sensing
- ECE 8413 Digital Spectral Analysis
- ECE 8473 Digital Image Processing
- FO 8173 Advanced Spatial Technologies
- FO 8313 Spatial Statistics for Natural Resources
- GR 2313 Maps and Remote Sensing
- GR 3311 Geospatial Applications
- GR 3313 Introduction to Geodatabases
- GR 4313/6313 Advanced GIS
- GR 4323/6323 Cartographic Sciences
- GR 8303 Geodatabases
- SO 8243 Spatial Analysis of Social Data
- ST 4313/6313 Intro to Spatial Statistics
- ECE/FO/GR/PSS 4411/6411 Remote Sensing Seminar

\*Choose from the list of electives above or any courses in the required categories not previously taken to fulfill those requirements.

## Leadership Studies Minor

The interdisciplinary minor in Leadership Studies provides academic and experiential knowledge and skills to prepare students for future leadership positions in communities, professions, and organizations. The Leadership Studies minor is open to Mississippi State University students in all Colleges, Schools, and majors. It requires 19 hours of approved coursework, including at least one experiential internship component. No more than two courses from the same academic Department may be applied to this minor. Students in the Leadership Studies minor must maintain grade point averages of 2.00 or higher overall and grade point averages of 2.50 or higher in courses applied to the minor. Students must earn a grade of C or higher in all minor courses.

Admission and Graduation Standards: Entering freshmen may declare a Leadership Studies minor in the first semester by securing approval of a minor program of studies as outlined herein. Qualified students, including incoming transfer students, may declare the minor during any subsequent semester. After the first semester of college, students must have minimum overall GPAs of 2.00 or higher (including all course work taken, not just in the minor) to enter or remain in the minor. To graduate with a Minor in Leadership Studies, students must meet all course requirements on their approved programs of minor study, must have overall GPAs of 2.00 or higher on all coursework attempted, and must have 2.50 or higher GPAs over all minor courses. Students must earn grades of C or higher in all courses applied to the Leadership Studies minor.

Curriculum Outline: Each student will select one core course in each of three core areas: Ethics, which are essential for any leader; Social Science, which studies leadership directly and provides knowledge of direct relevance to leadership; and Communication, which involves skills that are critically

important for leaders. (For students in majors with little room for electives, judicious selection of the core courses in the Leadership Studies minor may simultaneously fulfill certain General Education requirements, College or School Core Curriculum, or Departmental Major requirements.) Each student will further select from an approved list, in consultation with his or her Leadership Studies minor advisor, at least three more courses that facilitate the student's goals. Finally, each student will register for a 1-hour (48 contact hours during the semester) experiential internship.

Area I: Ethics and Leadership. Choose One:

PHI 1123 Introduction to Ethics  
MGT 3823 Socially Responsible Leadership

Area II: Leadership and Social Science. Choose One:

MGT 3813 Organizational Behavior  
PSY 3623 Social Psychology  
PS 3013 Political Leadership  
PS/GE 2713 Engineering and Public Policy

Area III: Leadership and Communication Skills. Choose One:

CO 1003 Fundamentals of Public Speaking  
CO 2213 Small Group Communication  
CO 3803 Public Relations

Area IV: Experiential internship component. Choose One:

EXL 1191 Leadership Studies Internship

Area V: Electives. Choose Three:

See advisor for a complete list of approved leadership electives. Additional courses listed in the Minor Core above can be taken as electives, if they are not used to fulfill Minor Core requirements.

For additional information, contact Robert Green, Chair, Leadership Studies Minor committee at [green@bagley.msstate.edu](mailto:green@bagley.msstate.edu)

## **UNIVERSITY ACADEMIC ADVISING CENTER**

UNDECLARED (UND)

Director: Dr. David Boles

Assistant Director: Wesley Ammon

Professional Academic Advisors: Tim Fancher,  
Janet Odom, Sandra Powe and Andrew Sharp

48 Magruder Street; Mail Stop 9729;

Web site at <http://www.msstate.edu/dept/academic-advising>

Telephone (662) 325-4052; Fax (662) 325-4026;

P.O. Box 6117, Mississippi State, MS 39762.

### **UAAC Mission to Undeclared students**

The University Academic Advising Center was established to meet the needs of those students who have competing interest in more than one major area, as well as those who are uncertain of their career and educational goals. The professional staff and volunteers at the center offer one on one advising services to traditional and nontraditional undergraduate students and provide accurate information concerning specific curriculum requirements, university policies and procedures, campus resources and various programs of study. The center is committed to assisting students with the development of educational plans consistent with their life goals, objectives and abilities. Students normally remain UND "majors" for no more than two semesters during which time advisors recommend courses that meet basic core requirements in relation to "majors of interest" for each individual student. Students who have reached Junior status can remain undeclared for one (1) semester after accumulating 60 hours of academic credit.

UAAC advisors traditionally recommend that UND students enroll in 12-18 hours each fall and spring semester with careful considerations given to courses required in each student's majors of interest. It is the goal of the center to assist each UND student in enrolling in courses that satisfy the minimum core requirements for any major the student may later choose with respect to each department's right to specify more stringent requirements than the University as a whole. However, ultimate responsibility for taking the UAAC staff's advice rests with the student.

Visits to UAAC and responses to request for information through our Web site are subject to staff availability and the center's priority responsibilities during MSU's designated preregistration and orientation periods. Otherwise, UAAC urges students to make appointments with advisors at the center to establish a plan of action. The University Academic Advising Center staff encourages all UND "majors" to utilize services offered by the Career Center, the Counseling Center, the Learning Center, Student Support Services and other support programs offered by various units at MSU.